CHAPTER 2 ALTERNATIVES

2.0 Introduction

This chapter presents the alternatives considered in this PEIS. These alternatives represent a reasonable range of actions which are appropriate for the first phase of incremental actions towards full implementation of an ecosystem approach to management. Alternatives under the following five issues were identified as appropriate for initiating step one in an incremental shift: 1) boundaries for Fishery Ecosystem Plans in the Western Pacific Region, 2) lists of MUS for each FEP 3) Council's advisory process to reflect place-based FEPs, 4) regional coordination, and 5) international coordination. Issues 1 and 2 are considered the Federal action in this document and are categorized as regulatory because they involve the reorganization and consolidation of current FMP regulations into place-based FEP regulations. Issues 3, 4, and 5 are non-regulatory (i.e. they have no regulatory effect) and their consideration is included for identifying an appropriate place-based advisory structure as well as for planning related to the Council's participation in broader ecosystem initiatives.

In general, each issue's alternatives range from low (no action or status quo) to high (implementation of a detailed and specific approach to the issue at hand). Alternatives selected as preferred by the Council and recommended to NMFS for approval and implementation (i.e. Regulatory issues) are also included and identified. This chapter also briefly discusses several additional alternatives and the reasons that they are not considered in detail. This approach allows an examination of the impacts that would be anticipated under alternatives that are inclusive of a full range of actions.

2.1 Issue 1: Fishery Ecosystem Plan Boundaries (Regulatory)

As described in Chapter 1, an ecosystem is generally considered as a system containing complex interactions among species, communities and the non-living environment. Ecosystems can be considered at various geographic scales, from a coral reef ecosystem with its diverse species and benthic habitats, to a large marine ecosystem such as the Pacific Ocean. From a marine ecosystem management perspective, defining the boundary of an ecosystem is challenging and depends on many factors, including life history characteristics, habitat requirements, and geographic ranges of fish and other marine resources including their interdependence between species and their environment. Additionally, processes which affect and influence abundance and distribution of natural resources, such as environmental cycles, extreme natural events and acute or chronic anthropogenic impacts must also be considered. Serious considerations must also be given to social, economic and/or political constraints.

For the purposes of this action, ecosystems are generally defined as geographically specified system of organisms, the environment, and the processes that control its dynamics. Humans and their society are considered to be integral part of these ecosystems and the alternatives considered here are cognizant of the human jurisdictional boundaries and varying management authorities that are present in the Western Pacific Region. These alternatives are also consistent

with NMFS' Ecosystem Principles Advisory Panel's 1999 report to Congress recommending that Councils should develop FEPs for the ecosystems under their jurisdiction, and delineate the extent of the those ecosystems. Under all alternatives considered here, continuing adaptive management could include subsequent actions to refine or expand these boundaries could be considered if and when supported by scientific data, management requirements, or management authority. These actions would be taken in accordance with the MSA, NEPA, ESA, MMPA and other applicable laws and statutes.

2.1.1 Issue 1: Alternatives Considered But Eliminated from Further Detailed Study

Delineate the entire Pacific Ocean Ecosystem as one FEP

Under this alternative, the entire Pacific Ocean, including all marine resources and habitats found within, would be delineated as a single ecosystem and managed under a single Pacific Ocean FEP regardless of jurisdiction or claim to continental shelf resources or submerged lands by states and territories of the US or foreign coastal nations. While this delineation would provide a theoretical mechanism to implement the broadest application of an ecosystem approach to management, it would constitute an illegal usurpation of sovereignty over the territorial seas and exclusive economic zones of countries established and recognized through existing and international treaties and conventions and would be anticipated to be unsuccessful. Similarly, extension of Federal management authority over submerged lands and marine resources of coastal states would also violate domestic laws and states' rights. For these reasons this alternative is not considered in without further detail.

Delineate identified insular-Pacific Large Marine Ecosystems as FEPs

This alternative would utilize the definitions of Large Marine Ecosystems (LME) presented by Sherman and Alexander (1986). Under this alternative, all Federal waters surrounding the Hawaiian Archipelago from the shoreline to 200 nm, including all marine resources and habitats found within would be delineated as an ecosystem, and would be managed under a Hawaii LME FEP with the State of Hawaii retaining primary management authority for marine resources from 0-3 miles. Because no LMEs for the remaining waters of the Western Pacific Region have been defined, this alternative would continue adaptively managing these resources under the existing FMPs for botttomfish, crustaceans, precious corals, coral reef ecosystems and pelagics to the extent that they apply. This would not meet this action's objective to develop place-based FEPs for the entire Western Pacific Region and for this reason it is not considered in further detail.

Delineate all islands, atolls, reefs and other major benthic features as FEPs

Under this alternative, Federal waters and associated marine resources around each island, atoll, reef, seamount, bank or other major benthic feature in the Western Pacific Region would be delineated as a separate and discrete ecosystem and managed under separate and discrete FEPs. Local state, territorial and commonwealth governments would retain primary management authority for marine resources from 0-3 miles. To illustrate the application of this alternative in the Hawaii Archipelago, the islands of Hawaii, Maui, Kahoolawe, Lanai, Oahu, Molokai, Kauai,

Niihau, Nihoa, Necker, French Frigate Shoals, Laysan, Lisianski, Maro Reef, the Pearl and Hermes, Midway, and Kure Atolls, and Pioneer and Raita Banks would each be delineated as a distinct ecosystem and managed under separate FEPs. Under this alternative, FEPs would need to be developed for at least 20 other locations throughout the Western Pacific Region. Taking such an approach would provide a mechanism to develop very discrete management measures tailored specifically to meet the needs of area based on the scientific information regarding that particular location. However, such a detailed level of management would significantly increase the need for site specific scientific data, administration, management and personnel in order to be successful. While this may be an appropriate alternative in the future, constraints on funding and capacity to support such a management regime is not possible at this time. For this reason, this alternative is not considered in further detail.

2.1.2 Issue 1 Alternatives Considered in Detail

2.1.2.1 Alternative 1A: No Action – do not delineate or implement FEP boundaries

Under this alternative, FEP boundaries would not be established, FEPs would not be implemented, and the current FMP boundaries from would remain. Fishery operations would continue to be adaptively managed under each FMP in accordance with the Magnuson Act and other applicable laws and statutes.

Table 4: Western Pacific FMP Regulatory Areas

FMP	Areas included
* Bottomfish and Seamount Groundfish	Federal waters surrounding American Samoa, Guam and Hawaii
* Crustaceans	Federal waters surrounding American Samoa, Guam and Hawaii
* Precious Corals	Federal waters surrounding Hawaii, Guam, American Samoa and the PRIA
Coral Reef Ecosystems	Federal waters surrounding American Samoa, Guam, Hawaii (except the NWHI), the CNMI and the PRIA
Pacific Pelagics	Federal waters surrounding American Samoa, Guam, Hawaii, the CNMI and the PRIA

***** Amendment 8 to the Bottomfish and Seamount Groundfish FMP, Amendment 12 to the Crustaceans FMP, and Amendment 6 to the Precious Corals FMP (pending) would establish new permit and reporting requirements for the CNMI and PRIA and incorporate them into the regulatory area of those FMPs.

2.1.2.2 Alternative 1B: Delineate and implement separate FEPs surrounding each archipelago

Under Alternative 1B contiguous FEP boundaries would be established to enclose each of the Western Pacific Region's archipelagos into separate archipelagic FEPs which encompass Federal waters from 3-200 miles from shore (with the exception of waters around CNMI and the PRIA which do not have state waters and in which instance the FEP boundaries would encompass Federal waters from 0-200 miles from shore).

Due to their close proximity, ecological linkages, and social connections, Federal waters and the associated marine resources surrounding Guam and the Northern Mariana Islands would be delineated as a single ecosystem and managed under a Mariana Archipelago FEP. For the same reasons, Federal waters surrounding the Hawaiian Islands (including Midway[1] and Johnston Atolls due to their ecological connections), would be delineated as a second ecosystem and managed under a Hawaii Archipelago FEP. Federal waters surrounding American Samoa would be delineated as a third ecosystem and managed under an American Samoa Archipelago FEP. Due to their ecological and cultural connections, an advisory relationship with independent Samoa would be sought to facilitate the development of collaborative management activities. Federal waters around the remaining U.S. Pacific Remote Islands some of which are part of the Line and Phoenix Islands, would together comprise a fourth and final FEP.

2.1.2.3 Alternative 1C: Delineate and implement four separate demersal FEPs surrounding each archipelago as well as a single Pelagic FEP that includes the entire region (Preferred)

Under Alternative 1C, the four archipelagic ecosystems described in Alternative 1B would be defined as comprising four demersal FEPs. An additional fifth FEP would be defined to include all pelagic waters and associated marine resources within Federal waters of the entire Western Pacific Region. The boundary of the Pelagics FEP would overlap with the boundaries of the demersal FEPs, however, the Pelagics FEP would specifically manage those resources and habitats associated with the pelagic ecosystem, particularly, pelagic fishery resources (see Table 5).

Table 5: Boundaries of Ecosystems and FEPs under Alternative 1C (Preferred)

FEP	Areas included
Hawaii Archipelago FEP	Federal waters surrounding the Hawaiian and Northwestern Hawaiian Islands from Hawaii Island to Kure Atoll, and Johnston Atoll
Mariana Archipelago FEP	Federal waters surrounding Guam and the Northern Mariana Islands from Rota to Uracas Island
Pacific Remote Island Areas FEP	Federal waters surrounding Howland, Baker, Jarvis, Kingman Reef, Palmyra Atoll and Wake Island
American Samoa Archipelago FEP	Federal waters surrounding American Samoa
Pacific Pelagics FEP	Federal waters and high seas of the entire Western Pacific Region

2.1.2.4 Alternative 1D: Delineate and implement separate FEPs for each biogeographic and pelagic zone

Under this alternative, major biogeographic zones for each island jurisdiction and all marine resources and habitats associated with those not necessarily contiguous zones would be

[1] Although physically located in the Northwestern Hawaiian Islands, Midway Atoll is defined as part of the PRIA.

delineated as distinct ecosystems and managed under separate FEPs. Specifically, in each island area, the coral reef ecosystem, the deep reef benthic ecosystem, the seamount ecosystem and the pelagic environment would be delineated as a separate and distinct ecosystem and managed as under separate FEPs. To illustrate the application of this alternative in the Northern Mariana Islands, all coral reef ecosystems from Uracas to Rota would be delineated as an ecosystem and managed under a Northern Mariana Islands Coral Reef Ecosystem FEP. Similarly, the seamounts located west of CNMI would be managed under Northern Marina Islands Seamount FMP.

2.2 Issue 2: Management Unit Species (Regulatory)

Management unit species are those species that are managed under each FMP or FEP. The MUS lists currently contained in the Council's existing FMPs include those species that are caught in quantities sufficient to warrant management or specific monitoring by NMFS and the Council. National Standard 3 of the MSA requires that to the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish be managed as a unit or in close coordination. There are currently five multi-species FMPs: the Bottomfish and Seamount Groundfish FMP, the Crustaceans FMP, the Precious Corals FMP, the Coral Reef Ecosystems FMP and the Pelagics FMP – each containing its own list of MUS which are managed under that plan. Each of the FMPs apply throughout the entire Western Pacific Region and therefore the MUS of each plan is presently comprised of species that are significantly harvested by fisheries across the region. Species caught in lesser amounts are also monitored, however they are not generally included in the annual evaluations for stocks managed by the Councils which are currently required under the MSA.

The primary impact of inclusion of species in an MUS list is that the species (i.e. the fishery targeting that species) can be directly managed. In ecosystem approaches to fishery management, the need for a list of MUS under an FEP remains, and the species listed should reflect the management objective within a particular FEP boundary. In addition, MUS managed under each FMP are currently categorized into stocks or stock complexes for the purposes of stock assessments and determinations regarding overfishing and overfished conditions. For example due to genetic connectivity between the NWHI and the MHI, Hawaii stocks managed under the Bottomfish and Seamount Groundfish FMP are classified as one multi-species complex. By contrast, the Guam botttomfish complex is treated as distinct from that in the CNMI – however this is in large part because the CNMI is not yet included in the Bottomfish FMP (see Table 4). Although the Council has informally recommended that the CNMI botttomfish stocks be included with those around Guam in a Mariana multi-species botttomfish stock complex, due to a lack of information none of the alternatives considered here would do so or otherwise change the current stock and stock complex geographic classifications or overfishing control rules and reference points now in effect.

2.2.1 Issue 2 Alternatives Considered But Eliminated from Further Detailed Study

<u>Define FEP MUS as all species presumed to occur within the FEP boundary</u>

Under this alternative, all species (primary producer to top-level predator) presumed to occur within each FEP boundary would be included on that FEP's MUS list. While principles of and ecosystem approach to fisheries management direct managers to consider predator/prey relationships for each target species, it does not require managers to specifically manage all species within an ecosystem. The MSA however, requires that MUS are identified for each plan and that periodic (preferably annual) reports and assessments are prepared on the biological condition of the stocks managed under each plan among other information relevant to the fishery. Due to the literally tens of thousands of species that would need to be identified and scientifically assessed pursuant to the MSA, and the absence of the need to identify and manage every species under an ecosystem approach, this alternative was eliminated at this time without further study.

Define FEP MUS as all species known to occur within the FEP boundary

Under this alternative, all species (primary producer to top-level predator) known to occur within each FEP boundary would be included on that FEP's MUS list. As above, this alternative would require managers to identify as MUS, any and all species presumed to occur within the boundary of an FEP. For the reasons discussed above this alternative was eliminated at this time without further detailed study.

2.2.2 Issue 2 Alternatives Considered in Detail

2.2.2.1 Alternative 2A: No Action – do not change the current MUS lists

Under this alternative, the existing list of MUS from the five existing FMPs (Tables 6-11) would be combined and carried over to form a new list of MUS for each FEP. Using this approach, the MUS lists for all FEPs would be identical and would be comprised of the following species irregardless of whether the species is known to exist within the particular FEP's boundaries.

Table 6: Current Bottomfish and Seamount Groundfish FMP MUS

Scientific Name	English Common Name	Scientific Name	English Common Name
Aphareus rutilans	Silver jaw jobfish	*Pristipomoides auricilla*	Yellowtail snapper
Aprion virescens	Gray jobfish	*P. filamentosus*	Pink snapper
Caranx ignobilis	Giant trevally	*P. flavipinnis*	Yelloweye snapper
C. lugubris	Black jack	*P. seiboldii*	Pink snapper
Epinephelus fasciatus	Blacktip grouper	*P. zonatus*	Snapper
E. quernus	Sea bass	*Pseudocaranx dentex*	Thicklip trevally
Etelis carbunculus	Red snapper	*Seriola dumerili*	Amberjack
E. coruscans	Longtail snapper	*Variola louti*	Lunartail grouper

Lethrinus amboinensis	Ambon emperor		*Beryx splendens*	Alfonsin
L. rubrioperculatus	Redgill emperor		*Hyperoglyphe japonica*	Ratfish
Lutjanus kasmira	Blue stripe snapper		*Pseudopentaceros richardsoni*	Armorhead

Table 7: Current Crustaceans FMP MUS

Scientific Name	English Common Name
Panulirus marginatus	Spiny lobster
Panulirus penicillatus	Spiny lobster
Family Scyllaridae	Slipper lobster
Ranina ranina	Kona crab

Table 8: Current Precious Corals FMP MUS

Scientific Name	English Common Name		Scientific Name	English Common Name
Corallium spp.	Any coral of the genus *Corallium*		*Calyptrophora* spp.	Gold coral
Corallium secundum	Pink coral (also known as red coral)		*Lepidisis olapa*	Bamboo coral
Corallium regale	Pink coral (also known as red coral)		*Acanella* spp.	Black coral
Corallium laauense	Pink coral (also known as red coral)		*Antipathes dichotoma*	Black coral
Gerardia spp.	Gold coral		*Antipathes grandis*	Black coral
Narella spp.	Gold coral		*Antipathes ulex*	Black coral

Table 9: Current Pelagics FMP MUS

Scientific Name	English Common Name		Scientific Name	English Common Name
Coryphaena spp.	Mahimahi (dolphinfishes)		*Isurus oxyrinchus*	Shortfin mako shark
Acanthocybium solandri	Wahoo		*Isurus paucus*	Longfin mako shark
Makaira mazara: M. indica	Indo-Pacific blue marlin, Black marlin		*Lamna ditropis*	salmon shark

Tetrapturus audax	Striped marlin		*Thunnus alalunga*	Albacore
T. angustirostris	Shortbill spearfish		*T. obesus*	Bigeye tuna
Xiphias gladius	Swordfish		*T. albacares*	Yellowfin tuna
Istiophorus platypterus	Sailfish		*T. thynnus*	Northern bluefin tuna
Alapias pelagicus	Pelagic thresher shark		*Katsuwonus pelamis*	Skipjack tuna
Alopias superciliousus	Bigeye thresher shark		*Euthynnus affinis*	Kawakawa
Alopias vulpinus	Common thresher shark		*Lampris spp*	Moonfish
Carcharhinus falciformis	Silky shark		*Gempylidae*	Oilfish family
Carcharhinus longimanus	Oceanic whitetip shark		family *Bramidae*	Pomfret
Prionace glauca	Blue shark		*Auxis spp, Scomber spp; Allothunus spp*	Other tuna relatives

Table 10: Current Coral Reef Ecosystem FMP MUS

Scientific Name	English Common Name		Scientific Name	English Common Name
Carcharhinidae Sphyrnidae	Sharks		*Scaridae*	Parrotfishes
Carangidae	Jacks and Scads		*Pomacentridae*	Damselfishes
Serrandiae	Groupers		*Siganidae*	Rabbitfishes
Lutjanidae	Snappers		*Sphyraenidae*	Barracudas
Lethrinidae	Emperors		*Pomacanthidae*	Angelfishes
Acanthuridae	Surgeonfishes		*Cirrhitidae*	Hawkfishes
Balistidae	Trigger fishes		*Dasyatididae Myliobatidae Mobulidae*	Rays and skates
Holocentridae	Solderfishes and Squirrelfishes		*Ephippidae*	Batfishes
Kuhliidae	Flagtails		*Monodactylidae*	Monos
Kyphosidae	Rudderfishes		*Haemulidae*	Sweetlips
Labridae	Wrasses		*Echineididae*	Remoras
Mullidae	Goatfishes		*Malacanthidae*	Tilefishes
Mugilidae	Mullets		*Acanthoclinidae*	Spiny basslets

Muraenidae *Chlopsidae* *Congridae* *Moringuidae* *Ophichthidae*	Eels	*Pseudochromidae*	Dottybacks
Polynemidae	Threadfins	*Apogonidae*	Cardinalfishes
Blenniidae	Blennies	*Scorpaenidae*	Scorpionfishes
Bothidae *Soleidae* *Pleurnectidae*	Flounders and Soles	*Pinguipedidae*	Sandperches
Ostraciidae	Trunkfishes	*Caracanthidae*	Coral crouchers
Tetradontidae	Puffer fishes and Porcupine fishes	*Antennariidae*	Frogfishes
Plesiopidae	Prettyfins	*Caesionidae*	Fusiliers
Tetrarogide	Waspfishes	*Grammistidae*	Soapfishes

Table 11: Coral Reef Ecosystem FMP MUS (cont.)

Scientific Name	English Common Name	Scientific Name	English Common Name
Syngnathidae	Pipefishes and Seahorses	*Anomalopidae*	Flashlightfishes
Aulostomidae	Trumpetfishes	*Clupeidae*	Herrings
Fistulariidae	Cornetfishes	*Engraulidae*	Anchovies
Monocanthidae	Filefishes	*Gobiidae*	Gobies
Chaetodontidae	Butterfly fishes	*Gymnosarda unicolor*	Dog tooth tuna
Order: Stomatopoda Order: *Decapoda*	Reef Associated Crustaceans: Lobsters Shrimps/Mantis Crabs	*Holothuridae* *Diadematidae*	Reef Associated Echinoderms: Sea cucumbers and sea urchins
Octopodidae *Sepiidae* *Loliginidae*	Reef Associated Cephalopods: Octopus Squids Cuttlefish	*Turbinidae* *Trochidae* *Strombidae* *Cypraeidae*	Reef Associated Gastropods: Turban shells Top shells Sea snails Sea slugs Conchs Cowries

Ostreidae *Tridacnidae*	Reef Associated Bivalves: Oysters Clams		*Sabellidae* Annelids	Reef Associated Worms: Segmented worms Flatworms Bristleworms ribbonworms Feather duster worms
Class: Cyanophyta *Class: Chlorophyta* *Class: Rhodophyta* *Class: Phaeophyta*	Reef Associated Algae: Blue-Green Algae Green Algae Red Algae Brown Algae		*Porifera*	Reef Associated Sponges
Heliopora Tubipora Azooxanthellates Fungiidae Millepora	All Reef Associated Stony Corals and Live Rock		Gorgonians Actinaria Zoanthinaria Stylasteridae Solanderidae	Other Reef Associated Stony Corals and Live Rock:
Phylum: Coelenterata (Cnidaria)	Reef Associated Hydrozoans and Bryzoans		*Chordata*	Reef Associated Tunicates: Sea squirts
All other coral reef ecosystem management unit species that are marine plants, invertebrates, and fishes which spend the majority of their non-pelagic (post settlement) life history stages within waters less than or equal to 50 fathoms in total depth.				

2.2.2.2 Alternative 2B: Define FEP MUS as those current MUS that are believed to be present within each FEP boundary (Preferred)

Under this alternative, each FEP would include MUS as only those current bottomfish and seamount MUS, crustacean MUS, precious coral MUS, coral reef ecosystem MUS and pelagic MUS that are present within each FEP boundary. The demersal and pelagic FEP lists under Alternative 1C would be as follows:

Table 12: Alternative 2B American Samoa Archipelago FEP MUS (Preferred)

Bottomfish MUS			
Scientific Name	**English Common Name**	**Scientific Name**	**English Common Name**
Aphareus rutilans	Silver jaw jobfish	*Pristipomoides auricilla*	Yellowtail snapper
Aprion virescens	Gray jobfish	*P. filamentosus*	Pink snapper
Caranx ignobilis	Giant trevally	*P. flavipinnis*	Yelloweye snapper

C. lugubris	Black jack	*P. seiboldii*	Pink snapper
Epinephelus fasciatus	Blacktip grouper	*P. zonatus*	Snapper
Etelis carbunculus	Red snapper	*Variola louti*	Lunartail grouper
E. coruscans	Longtail snapper	*L. rubrioperculatus*	Redgill emperor
Lethrinus amboinensis	Ambon emperor	*Lutjanus kasmira*	Blue stripe snapper
Seriola dumerili	Amberjack		

Crustacean MUS			
Scientific Name	**English Common Name**	**Scientific Name**	**English Common Name**
Panulirus penicillatus	Spiny lobster	*Ranina ranina*	Kona crab
Family Scyllaridae	Slipper lobster		

Precious Corals MUS			
Scientific Name	**English Common Name**	**Scientific Name**	**English Common Name**
Corallium spp.	Any coral of the genus *Corallium*	*Calyptrophora* spp.	Gold coral
Corallium secundum	Pink coral (also known as red coral)	*Lepidisis olapa*	Bamboo coral
Corallium regale	Pink coral (also known as red coral)	*Acanella* spp.	Black coral
Corallium laauense	Pink coral (also known as red coral)	*Antipathes dichotoma*	Black coral
Gerardia spp.	Gold coral	*Antipathes grandis*	Black coral
Narella spp.	Gold coral	*Antipathes ulex*	

Coral Reef MUS			
Scientific Name	**English Common Name**	**Scientific Name**	**English Common Name**
Carcharhinidae Sphyrnidae	Sharks	*Scaridae*	Parrotfishes
Carangidae	Jacks and Scads	*Pomacentridae*	Damselfishes

Serrandiae	Groupers
Lutjanidae	Snappers
Lethrinidae	Emperors
Acanthuridae	Surgeonfishes
Balistidae	Trigger fishes
Holocentridae	Solderfishes and Squirrelfishes
Kuhliidae	Flagtails
Kyphosidae	Rudderfishes
Labridae	Wrasses
Mullidae	Goatfishes
Mugilidae	Mullets
Muraenidae *Chlopsidae* *Congridae* *Moringuidae* *Ophichthidae*	Eels
Polynemidae	Threadfins
Blenniidae	Blennies
Bothidae *Soleidae*	Flounders and Soles
Ostraciidae	Trunkfishes
Tetradontidae	Puffer fishes and Porcupine fishes
Plesiopidae	Prettyfins
Syngnathidae	Pipefishes and Seahorses
Aulostomidae	Trumpetfishes

Siganidae	Rabbitfishes
Sphyraenidae	Barracudas
Pomacanthidae	Angelfishes
Cirrhitidae	Hawkfishes
Dasyatididae *Myliobatidae* *Mobulidae*	Rays and skates
Ephippidae	Batfishes
Haemulidae	Sweetlips
Echineididae	Remoras
Malacanthidae	Tilefishes
Acanthoclinidae	Spiny basslets
Pseudochromidae	Dottybacks
Apogonidae	Cardinalfishes
Scorpaenidae	Scorpionfishes
Pinguipedidae	Sandperches
Caracanthidae	Coral crouchers
Antennariidae	Frogfishes
Caesionidae	Fusiliers
Anomalopidae	Flashlightfishes
Clupeidae	Herrings
Engraulidae	Anchovies

Fistulariidae	Cornetfishes
Monocanthidae	Filefishes
Chaetodontidae	Butterfly fishes
Order: Stomatopoda Order: *Decapoda*	Reef Associated Crustaceans: Lobsters Shrimps/Mantis Crabs
Octopodidae *Sepiidae* *Loliginidae*	Reef Associated Cephalopods: Octopus Squids Cuttlefish
Ostreidae *Tridacnidae*	Reef Associated Bivalves: Oysters Clams
Class: Cyanophyta *Class: Chlorophyta* *Class: Rhodophyta* *Class: Phaeophyta*	Reef Associated Algae: Blue-Green Algae Green Algae Red Algae Brown Algae
Heliopora Tubipora Azooxanthellates Fungiidae Millepora	All Reef Associated Stony Corals and Live Rock
Phylum: Coelenterata (Cnidaria)	Reef Associated Hydrozoans and Bryzoans:

Gobiidae	Gobies
Gymnosarda unicolor	Dog tooth tuna
Holothuridae *Diadematidae*	Reef Associated Echinoderms: Sea cucumbers and sea urchins
Turbinidae *Trochidae* *Strombidae* *Cypraeidae*	Reef Associated Gastropods: Turban shells Top shells Sea snails Sea slugs Conchs Cowries
Sabellidae Annelids	Reef Associated Worms: Segmented worms Flatworms Bristleworms ribbonworms Feather duster worms
Porifera	Reef Associated Sponges:
Gorgonians Actinaria Zoanthinaria Stylasteridae Solanderidae	Other Reef Associated Stony Corals and Live Rock:
Chordata	Reef Associated Tunicates: Sea squirts

All other coral reef ecosystem management unit species that are marine plants, invertebrates, and fishes which spend the majority of their non-pelagic (post settlement) life history stages within waters less than or equal to 50 fathoms in total depth.

Table 13: Alternative 2B Marianas Archipelago FEP MUS (Preferred)

Bottomfish MUS			
Scientific Name	**English Common Name**	**Scientific Name**	**English Common Name**
Aphareus rutilans	Silver jaw jobfish	*Pristipomoides auricilla*	Yellowtail snapper
Aprion virescens	Gray jobfish	*P. filamentosus*	Pink snapper
Caranx ignobilis	Giant trevally	*P. flavipinnis*	Yelloweye snapper
C. lugubris	Black jack	*P. seiboldii*	Pink snapper
Epinephelus fasciatus	Blacktip grouper	*P. zonatus*	Snapper
Etelis carbunculus	Red snapper	*Variola louti*	Lunartail grouper
E. coruscans	Longtail snapper	*L. rubrioperculatus*	Redgill emperor
Seriola dumerili	Amberjack	*Lutjanus kasmira*	Blue stripe snapper
Crustacean MUS			
Scientific Name	**English Common Name**	**Scientific Name**	**English Common Name**
Panulirus penicillatus	Spiny lobster	*Ranina ranina*	Kona crab
Family Scyllaridae	Slipper lobster		
Precious Corals MUS			
Scientific Name	**English Common Name**	**Scientific Name**	**English Common Name**
Corallium spp.	Any coral of the genus *Corallium*	*Calyptrophora* spp.	Gold coral
Corallium secundum	Pink coral (also known as red coral)	*Lepidisis olapa*	Bamboo coral
Corallium regale	Pink coral (also known as red coral)	*Acanella* spp.	Black coral
Corallium laauense	Pink coral (also known as red coral)	*Antipathes dichotoma*	Black coral
Gerardia spp.	Gold coral	*Antipathes grandis*	Black coral

Narella spp.	Gold coral	*Antipathes ulex*	Black coral
Coral Reef MUS			
Scientific Name	**English Common Name**	**Scientific Name**	**English Common Name**
Carcharhinidae *Sphyrnidae*	Sharks	*Scaridae*	Parrotfishes
Carangidae	Jacks and Scads	*Pomacentridae*	Damselfishes
Serrandiae	Groupers	*Siganidae*	Rabbitfishes
Lutjanidae	Snappers	*Sphyraenidae*	Barracudas
Lethrinidae	Emperors	*Pomacanthidae*	Angelfishes
Acanthuridae	Surgeonfishes	*Cirrhitidae*	Hawkfishes
Balistidae	Trigger fishes	*Dasyatididae* *Myliobatidae*	Rays and skates
Holocentridae	Solderfishes and Squirrelfishes	*Ephippidae*	Batfishes
Kuhliidae	Flagtails	*Haemulidae*	Sweetlips
Kyphosidae	Rudderfishes	*Echineididae*	Remoras
Labridae	Wrasses	*Malacanthidae*	Tilefishes
Mullidae	Goatfishes	*Acanthoclinidae*	Spiny basslets
Mugilidae	Mullets	*Pseudochromidae*	Dottybacks
Muraenidae *Chlopsidae* *Congridae* *Ophichthidae*	Eels	*Apogonidae*	Cardinalfishes
Polynemidae	Threadfins	*Scorpaenidae*	Scorpionfishes
Blenniidae	Blennies	*Pinguipedidae*	Sandperches
Bothidae *Soleidae*	Flounders and Soles	*Caracanthidae*	Coral crouchers
Ostraciidae	Trunkfishes	*Antennariidae*	Frogfishes

Tetradontidae	Puffer fishes and Porcupine fishes
Plesiopidae	Prettyfins
Syngnathidae	Pipefishes and Seahorses
Aulostomidae	Trumpetfishes
Fistulariidae	Cornetfishes
Monocanthidae	Filefishes
Chaetodontidae	Butterfly fishes
Order: Stomatopoda Order: *Decapoda*	Reef Associated Crustaceans: Lobsters Shrimps/Mantis Crabs
Octopodidae *Sepiidae* *Loliginidae*	Reef Associated Cephalopods: Octopus Squids Cuttlefish
Ostreidae *Tridacnidae*	Reef Associated Bivalves: Oysters Clams
Class: Cyanophyta *Class: Chlorophyta* *Class: Rhodophyta* *Class: Phaeophyta*	Reef Associated Algae: Blue-Green Algae Green Algae Red Algae Brown Algae

Caesionidae	Fusiliers
Anomalopidae	Flashlightfishes
Clupeidae	Herrings
Engraulidae	Anchovies
Gobiidae	Gobies
Gymnosarda unicolor	Dog tooth tuna
Holothuridae *Diadematidae*	Reef Associated Echinoderms: Sea cucumbers and sea urchins
Turbinidae *Trochidae* *Strombidae* *Cypraeidae*	Reef Associated Gastropods: Turban shells Top shells Sea snails Sea slugs Conchs Cowries
Sabellidae Annelids	Reef Associated Worms: Segmented worms Flatworms Bristleworms ribbonworms Feather duster worms
Porifera	Reef Associated Sponges
Gorgonians Actinaria Zoanthinaria Stylasteridae Solanderidae	Other Reef Associated Stony Corals and Live Rock

Heliopora Tubipora Azooxanthellates Fungiidae Millepora	All Reef Associated Stony Corals and Live Rock	*Chordata*	Reef Associated Tunicates: Sea squirts
Phylum: Coelenterata (Cnidaria)	Reef Associated Hydrozoans and Bryzoans		
All other coral reef ecosystem management unit species that are marine plants, invertebrates, and fishes which spend the majority of their non-pelagic (post settlement) life history stages within waters less than or equal to 50 fathoms in total depth.			

Table 14: Alternative 2B Hawaii Archipelago FEP MUS (Preferred)

Bottomfish MUS			
Scientific Name	**English Common Name**	**Scientific Name**	**English Common Name**
Aphareus rutilans	Silver jaw jobfish	*Pristipomoides auricilla*	Yellowtail snapper
Aprion virescens	Gray jobfish	*P. filamentosus*	Pink snapper
Caranx ignobilis	Giant trevally	*P. seiboldii*	Pink snapper
C. lugubris	Black jack	*P. zonatus*	Snapper
E. quernus	Sea Bass	*Lutjanus kasmira*	Blue stripe snapper
Etelis carbunculus	Red snapper	*Psuedocaranx dentex*	Thicklip trevally
E. coruscans	Longtail snapper	*Beryx splendens*	Alfonsin
Seriola dumerili	Amberjack	*Pseudopentaceros richardsoni*	Armorhead
Crustacean MUS			
Scientific Name	**English Common Name**	**Scientific Name**	**English Common Name**
Panularis marginatus	Spiny lobster	*Family Scyllaridae*	Slipper lobster
Panulirus penicillatus	Spiny lobster	*Ranina ranina*	Kona crab
Precious Corals MUS			
Scientific Name	**English Common Name**	**Scientific Name**	**English Common Name**
Corallium spp.	Any coral of the genus *Corallium*	*Corallium regale*	Pink coral (also known as red coral)

Corallium secundum	Pink coral (also known as red coral)	*Lepidisis olapa*	Bamboo coral
Corallium laauense	Pink coral (also known as red coral)	*Antipathes dichotoma*	Black coral
Gerardia spp.	Gold coral	*Antipathes grandis*	Black coral
Narella spp.	Gold coral	*Antipathes ulex*	Black coral

Coral Reef MUS			
Scientific Name	**English Common Name**	**Scientific Name**	**English Common Name**
Carcharhinidae *Sphyrnidae*	Sharks	*Scaridae*	Parrotfishes
Carangidae	Jacks and Scads	*Pomacentridae*	Damselfishes
Serrandiae	Groupers	*Sphyraenidae*	Barracudas
Lutjanidae	Snappers	*Pomacanthidae*	Angelfishes
Lethrinidae	Emperors	*Cirrhitidae*	Hawkfishes
Acanthuridae	Surgeonfishes	*Dasyatididae* *Myliobatidae*	Rays and skates
Balistidae	Trigger fishes	*Ephippidae*	Batfishes
Holocentridae	Solderfishes and Squirrelfishes	*Haemulidae*	Sweetlips
Kuhliidae	Flagtails	*Echineididae*	Remoras
Kyphosidae	Rudderfishes	*Malacanthidae*	Tilefishes
Labridae	Wrasses	*Acanthoclinidae*	Spiny basslets
Mullidae	Goatfishes	*Apogonidae*	Cardinalfishes
Mugilidae	Mullets	*Scorpaenidae*	Scorpionfishes
Muraenidae *Chlopsidae* *Congridae* *Ophichthidae*	Eels	*Pinguipedidae*	Sandperches

Polynemidae	Threadfins
Blenniidae	Blennies
Bothidae *Soleidae* *Pleurnectidae*	Flounders and Soles
Ostraciidae	Trunkfishes
Tetradontidae	Puffer fishes and Porcupine fishes
Monocanthidae	Filefishes
Syngnathidae	Pipefishes and Seahorses
Aulostomidae	Trumpetfishes
Fistulariidae	Cornetfishes
Monocanthidae	Filefishes
Chaetodontidae	Butterfly fishes
Order: Stomatopoda Order: *Decapoda*	Reef Associated Crustaceans: Lobsters Shrimps/Mantis Crabs

Caracanthidae	Coral crouchers
Antennariidae	Frogfishes
Clupeidae	Herrings
Engraulidae	Anchovies
Gobiidae	Gobies
Holothuridae *Diadematidae*	Reef Associated Echinoderms: Sea cucumbers and sea urchins
Turbinidae *Trochidae* *Strombidae* *Cypraeidae*	Reef Associated Gastropods: Turban shells Top shells Sea snails Sea slugs Conchs Cowries
Sabellidae Annelids	Reef Associated Worms: Segmented worms Flatworms Bristleworms ribbonworms Feather duster worms
Porifera	Reef Associated Sponges:
Gorgonians Actinaria Zoanthinaria Stylasteridae Solanderidae	Other Reef Associated Stony Corals and Live Rock:
Chordata	Reef Associated Tunicates: Sea squirts
Ostreidae	Reef Associated Bivalves: Oysters Clams

Octopodidae *Sepiidae* *Loliginidae*	Reef Associated Cephalopods: Octopus Squids Cuttlefish		Heliopora Tubipora Azooxanthellates Fungiidae Millepora	All Reef Associated Stony Corals and Live Rock:
Class: Cyanophyta *Class: Chlorophyta* *Class: Rhodophyta* *Class: Phaeophyta*	Reef Associated Algae: Blue-Green Algae Green Algae Red Algae Brown Algae		*Phylum: Coelenterata* (Cnidaria)	Reef Associated Hydrozoans and Bryzoans:
All other coral reef ecosystem management unit species that are marine plants, invertebrates, and fishes which spend the majority of their non-pelagic (post settlement) life history stages within waters less than or equal to 50 fathoms in total depth.				

Table 15: Alternative 2B PRIA FEP MUS (Preferred)

Bottomfish MUS			
Scientific Name	**English Common Name**	**Scientific Name**	**English Common Name**
Aphareus rutilans	Silver jaw jobfish	*Pristipomoides auricilla*	Yellowtail snapper
Caranx ignobilis	Giant trevally	*P. filamentosus*	Pink snapper
C. lugubris	Black jack		
Epinephelus fasciatus	Blacktip grouper	*P. seiboldii*	Pink snapper
Etelis carbunculus	Red snapper	*Variola louti*	Lunartail grouper
E. coruscans	Longtail snapper	*L. rubrioperculatus*	Redgill emperor
Crustacean MUS			
Scientific Name	**English Common Name**	**Scientific Name**	**English Common Name**
Panulirus penicillatus	Spiny lobster	*Ranina ranina*	Kona crab
Family Scyllaridae	Slipper lobster		
Precious Corals MUS			
Scientific Name	**English Common Name**	**Scientific Name**	**English Common Name**
Corallium spp.	Any coral of the genus *Corallium*	*Calyptrophora* spp.	Gold coral

Corallium secundum	Pink coral (also known as red coral)	*Lepidisis olapa*	Bamboo coral
Corallium regale	Pink coral (also known as red coral)	*Acanella* spp.	Black coral
Corallium laauense	Pink coral (also known as red coral)	*Antipathes dichotoma*	Black coral
Gerardia spp.	Gold coral	*Antipathes grandis*	Black coral
Narella spp.	Gold coral	*Antipathes ulex*	Black coral
Coral Reef MUS			
Scientific Name	**English Common Name**	**Scientific Name**	**English Common Name**
Carcharhinidae	Sharks	*Scaridae*	Parrotfishes
Carangidae	Jacks and Scads	*Pomacentridae*	Damselfishes
Serrandiae	Groupers	*Siganidae*	Rabbitfishes
Lutjanidae	Snappers	*Sphyraenidae*	Barracudas
Lethrinidae	Emperors	*Pomacanthidae*	Angelfishes
Acanthuridae	Surgeonfishes	*Cirrhitidae*	Hawkfishes
Balistidae	Trigger fishes	*Myliobatidae Mobulidae*	Rays and skates
Holocentridae	Solderfishes and Squirrelfishes	*Haemulidae*	Sweetlips
Kuhliidae	Flagtails	*Echineididae*	Remoras
Kyphosidae	Rudderfishes	*Malacanthidae*	Tilefishes
Labridae	Wrasses	*Acanthoclinidae*	Spiny basslets
Mullidae	Goatfishes	*Pseudochromidae*	Dottybacks
Mugilidae	Mullets	*Apogonidae*	Cardinalfishes

Muraenidae *Chlopsidae* *Congridae* *Ophichthidae*	Eels
Polynemidae	Threadfins
Blenniidae	Blennies
Bothidae	Flounders and Soles
Ostraciidae	Trunkfishes
Tetradontidae	Puffer fishes and Porcupine fishes
Plesiopidae	Prettyfins
Syngnathidae	Pipefishes and Seahorses
Aulostomidae	Trumpetfishes
Fistulariidae	Cornetfishes
Monocanthidae	Filefishes
Chaetodontidae	Butterfly fishes
Order: Stomatopoda Order: *Decapoda*	Reef Associated Crustaceans: Lobsters Shrimps/Mantis Crabs

Scorpaenidae	Scorpionfishes
Pinguipedidae	Sandperches
Monocanthidae	Filefishes
Antennariidae	Frogfishes
Caesionidae	Fusiliers
Clupeidae	Herrings
Engraulidae	Anchovies
Gobiidae	Gobies
Gymnosarda unicolor	Dog tooth tuna
Holothuridae *Diadematidae*	Reef Associated Echinoderms: Sea cucumbers and sea urchins
Turbinidae *Trochidae* *Strombidae* *Cypraeidae*	Reef Associated Gastropods: Turban shells Top shells Sea snails Sea slugs Conchs Cowries
Sabellidae Annelids	Reef Associated Worms: Segmented worms Flatworms Bristleworms ribbonworms Feather duster worms
Porifera	Reef Associated Sponges

Octopodidae *Sepiidae* *Loliginidae*	Reef Associated Cephalopods: Octopus Squids Cuttlefish	Gorgonians Actinaria Zoanthinaria Stylasteridae Solanderidae	Other Reef Associated Stony Corals and Live Rock
Ostreidae *Tridacnidae*	Reef Associated Bivalves: Oysters Clams	*Chordata*	Reef Associated Tunicates: Sea squirts
Class: Cyanophyta *Class: Chlorophyta* *Class: Rhodophyta* *Class: Phaeophyta*	Reef Associated Algae: Blue-Green Algae Green Algae Red Algae Brown Algae	*Phylum: Coelenterata* (Cnidaria)	Reef Associated Hydrozoans and Bryzoans:
Heliopora *Tubipora* *Azooxanthellate* *Fungiidae* *Millepora*	All Reef Associated Stony Corals and Live Rock		
All other coral reef ecosystem management unit species that are marine plants, invertebrates, and fishes which spend the majority of their non-pelagic (post settlement) life history stages within waters less than or equal to 50 fathoms in total depth.			

Table 16: Alternative 2B Pacific Pelagics FEP MUS (Preferred)

Scientific Name	English Common Name	Scientific Name	English Common Name
Coryphaena spp.	Mahimahi (dolphinfishes)	*Isurus oxyrinchus*	Shortfin mako shark
Acanthocybium solandri	Wahoo	*Isurus paucus*	Longfin mako shark
Makaira mazara: M. indica	Indo-Pacific blue marlin, Black marlin	*Lamna ditropis*	salmon shark
Tetrapturus audax	Striped marlin	*Thunnus alalunga*	Albacore
T. angustirostris	Shortbill spearfish	*T. obesus*	Bigeye tuna
Xiphias gladius	Swordfish	*T. albacares*	Yellowfin tuna
Istiophorus platypterus	Sailfish	*T. thynnus*	Northern bluefin tuna
Alapias pelagicus	Pelagic thresher shark	*Katsuwonus pelamis*	Skipjack tuna

Alopias superciliousus	Bigeye thresher shark	*Euthynnus affinis*	Kawakawa
Alopias vulpinus	Common thresher shark	*Lampris spp*	Moonfish
Carcharhinus falciformis	Silky shark	*Gempylidae*	Oilfish family
Carcharhinus longimanus	Oceanic whitetip shark	*family Bramidae*	Pomfret
Prionace glauca	Blue shark	*Auxis spp, Scomber spp; Allothunus spp*	Other tuna relatives

2.2.2.3 Alternative 2C: Define FEP MUS as those current MUS plus incidentally caught and associated species that are known to occur within each FEP boundary

Under this alternative, each FEP would include as MUS those target, incidentally caught and associated species (species which occupy the same or similar niche such as prey competitors or habitat competitors) that are known to occur within each FEP boundary.

2.2.2.4 Alternative 2D: Define FEP MUS as those current MUS plus incidentally caught and associated species that are believed to potentially occur within each FEP boundary

Under this alternative, each FEP would include as MUS those target, incidentally caught and associated species (species which occupy the same or similar niche such as prey competitors or habitat competitors) that are believed to potentially occur within each FEP boundary.

2.3 Issue 3: Council Advisory Structure (Non-regulatory)

The Council's current advisory process follows the MSA and includes the general public, fishery participants and support sectors, social and biological scientists, and local and Federal resource managers in the development of its fishery management recommendations. The existing structure for these advisory bodies based on a combination of species and stakeholder interest groupings. For example, Plan Teams exist for each of the five species-based FMPs, while four Advisory Panels are organized around commercial, recreational and subsistence fisheries, and other interest groups.

Given the place-based nature of ecosystem management, several alternatives for modifying the existing structure towards a more geographic orientation are considered in this PEIS.

2.3.1 Issue 3 Alternatives Considered But Eliminated from Further Detailed Study

<u>Establish international advisory bodies</u>

Under this alternative, the structure of the Council's advisory bodies would remain the same but they would each include additional representatives from various sectors and government

agencies from the U.S. Pacific Islands as well as from foreign countries or island groups within or bordering the Pacific Ocean. Although this could increase the reach and scope of the Council's recommendations, the legal implications and logistical requirements of this alternative remain unclear and for this reason it is rejected at this time without further consideration.

Establish LME advisory bodies

Under this alternative, the structure of the Council's existing advisory bodies would remain the same, but an additional LME advisory body would be created whose members would consist of stakeholders, scientists and managers from the Hawaii LME. This alternative could provide additional expertise to the management of the Hawaii LME, however because no LMEs were identified by for the remaining waters of the Western Pacific Region there would be no corresponding advisory bodies for the non-Hawaii areas. For this reason this alternative is rejected without further consideration.

2.3.2 Issue 3 Alternatives Considered in Detail

2.3.2.1 Alternative 3A: No Action - do not change the current Council advisory structure

Under this alternative, the Council's current advisory structure would not change to one reflecting the geographical orientation of ecosystem management and the need for increased participation by land-based interests. The Council would continue to utilize its existing five Plan Teams, four Advisory Panels, twelve Standing Committees and one Scientific and Statistical Committee to provide scientific and management recommendations to the Council. The structure and responsibilities of each group are described below.

Plan Teams: The Council's five Plan Teams oversee the development of FMPs and review information pertaining to the performance of the fisheries and the status of the stocks managed under each FMP. Plan Teams meet at least once annually and are comprised of individuals from local and Federal marine resource management agencies and non-governmental organizations. Plan Teams are led by Chairs who are appointed by the Council Chair after consultation with the Executive Standing Committee. Plan Team findings and Plan Team recommendations are reported to the Council at their regular meetings.

Advisory Panels: The Council's four Advisory Panels advise the Council on fishery management problems, provide input to the Council regarding fishery management planning efforts, and advise the Council on the content and likely effects of management plans, amendments, and management measures. Advisory Panel membership is arranged by fishery sector, with two representatives from each island area selected by the Council Chair to serve on each panel (except for Hawaii which has four representatives on each panel due to its larger population, see Table 17). Advisory Panel members are fishermen and other knowledgeable stakeholders who meet at the direction of the Council to provide continuing and detailed participation by industry members and other members of the public.

Table 17: Current Council Advisory Panel Structure

	Commercial Panel	Recreational Panel	Subsistence Panel	Ecosystems & Habitat Panel
American Samoa	2 members	2 members	2 members	2 members
Guam	2 members	2 members	2 members	2 members
Hawaii	4 members	4 members	4 members	4 members
CNMI	2 members	2 members	2 members	2 members

Scientific and Statistical Committee: The Council's Scientific and Statistical Committee (SSC) is composed of scientists from local and Federal agencies, academic institutions, and other organizations. These scientists represent the range of disciplines required for the scientific oversight of fishery management in the Western Pacific Region. The role of the SSC is to: (1) identify scientific resources required for the development of FMPs and amendments and recommend resources for Plan Teams; (2) provide multi-disciplinary review of management plans or amendments and advise the Council on their scientific content; and (3) assist the Council in the evaluation of such statistical, biological, economic, social, and other scientific information as is relevant to the Council's activities, and recommend methods and means for the development and collection of such information; and (4) advise the Council on the composition of Plan Teams.

Standing Committees: The Council's twelve Standing Committees (Pelagics, Crustaceans, Bottomfish and Seamount Groundfish, Precious Corals, Ecosystems and Habitat, International Fisheries, Enforcement, Vessel Monitoring Systems, Fishery Rights of Indigenous People, Executive, Budget and Program, and Research) are composed of Council members and meet on the first day of each Council meeting to review available information and data for issues to be considered by the Council. The recommendations of the Standing Committees, along with the recommendations from all of other advisory bodies described above are then presented to the full Council for their consideration prior to taking action on specific measures or recommendations.

Under the no action alternative these existing advisory bodies would be held specifically responsible for considering and integrating ecosystem impacts when providing advice to the Council on the development and implementation of FMPs or FEPs.

2.3.2.2 Alternative 3B: Add a single FEP Plan Team to the current advisory structure

Under this alternative, the existing Advisory Panels, Plan Teams, SSC, and Standing Committees would be maintained and one new FEP Plan Team would be established to monitor the development and implementation of FEP(s) for the Western Pacific Region. The FEP Plan Team would be comprised of scientists from local and Federal agencies, academic institutions, and other sources with expertise in: (1) Fish Stock Assessment; (2) Habitat; (3) Oceanography; (4) Ecosystem Modeling; (5) Socioeconomics; (6) Geographic Information Systems and; (7) Marine Ecology and Ecosystem Dynamics. The FEP Plan Team would identify ecosystem issues for all

management actions and provide appropriate advice to the Council and its advisory bodies regarding these issues.

The FEP Plan Team would likely consist of 5-7 members that would coordinate and consult directly with selected agencies and organizations for each geographic region regarding FEP development and implementation. The existing advisory bodies would continue their duties as assigned with respect to industry issues, fisheries science, statistical analyses and environmental impacts for each FEP.

2.3.2.3 Alternative 3C: Replace the current FMP Advisory Panels, Plan Teams, and five Standing Committees with FEP Advisory Panels, FEP Plan Teams and FEP Standing Committees

Under this alternative, the existing Advisory Panels, FMP Plan Teams and five Standing Committees (Pelagics, Crustaceans, Bottomfish and Seamount Groundfish, Precious Corals, and Ecosystems and Habitat) would be replaced with FEP based Advisory Panels, and FEP Plan Teams based on each FEP's boundaries (e.g. a Hawaii Archipelago FEP Plan Team, Mariana Archipelago Advisory Panel etc.). The single SSC would continue to function as at present. The FEP Advisory Panels, Plan Teams and Standing Committees would assume all the duties and responsibilities of the existing groups including the review of fisheries catch and effort data and the development of appropriate management measured based on ecosystem principles. Each FEP Plan Team would develop annual reports for all fisheries within the FEP boundaries for which they are responsible, and all groups would provide advice to the Council as under the current process described in Alternative 3A.

2.3.2.4 Alternative 3D: Replace the current FMP Advisory Panels, Plan Teams, and five Standing Committees with FEP Advisory Panels, FEP Standing Committees and two FEP Plan Teams (preferred)

As in Alternative 3C, this alternative would replace the existing Advisory Panels and five of the Standing Committees with FEP Advisory Panels and FEP Standing Committees. However this alternative would replace the existing five FMP Plan Teams with a single Demersal FEP Plan Team and a single Pelagic FEP Plan Team that would each be responsible for overseeing the development and implementation of all demersal and pelagic FEPs respectively. All groups would provide advice to the Council as under the current process described in Alternative 3A. Under this alternative the existing SSC structure would be maintained.

2.4 Issue 4: Regional Coordination (Non-regulatory)

In the Western Pacific Region, management of ocean and coastal activities are administered by a number of agencies at the Federal, state, county and even village level. Many individual agencies administer programs and initiatives that address sometimes overlapping ocean and coastal issues. In some instances, programs and initiatives are also in conflict with one another. A primary reason for including regional coordination as an issue for consideration is its ability to address non-fishing impacts on marine ecosystems. A common sentiment expressed in public scoping

was a need for coordinated and consistent management from "Mountain to Sea." The primary objective for including and analyzing regional coordination options is to develop mechanism for which the Council may participate in broader ecosystem initiatives such as "Mountain to Sea."

As noted by the U.S. Commission on Ocean Policy and the President's US Ocean Action Plan, the first step in enhancing management of oceans and coasts is improving coordination among Federal programs as well as those of state, local and county departments and agencies. While there has been some progress made to increase inter-agency coordination through establishments of memorandums of agreements and formation of ad hoc committees, task forces and inter-agency working groups, a formalized, long term process between NOAA, the Council and other Federal, state and local agencies is still needed. Alternatives considered here would provide the Council a mechanism to actively participate in broader ecosystem initiatives that consider the impacts of land-based and non-fishing activities on the marine environment.. The mechanism considered is the establishment and participation on Councils or Committees comprised of representatives from Federal, state, local and county agencies and private entities, who are responsible for the permitting or implementation of both land and ocean-based activities that affect marine ecosystems. This would allow member agencies to share information on programs and activities and to coordinate management efforts or resources to address non-fishing related issues beyond the jurisdiction of the Council which could affect ocean and coastal resources. As there are no statutory requirements regarding the development and function of regional coordination groups, all groups considered below would have advisory capacity and their recommendations would not be obligatory on member agencies.

2.4.1 Issue 4 Alternatives Considered in Detail

2.4.1.1 Alternative 4A: No Action - do not establish Ocean Council type groups

Under this alternative the Council would not establish or support additional Ocean Council type groups but would continue to provide information regarding the impacts of land-based and non-fishing activities through its membership on the existing Hawaii Ocean and Coastal Committee and as requested on an ad hoc basis.

2.4.1.2 Alternative 4B: Establish Regional Ecosystem Council Committees (preferred)

Under this alternative the Council would establish Regional Ecosystem Advisory Committees comprised of Council members and representatives from Federal, state, and local government agencies, businesses and non-governmental organizations that have responsibility or interest in land-based and non-fishing activities that potentially affect the marine environment.

Committee membership would be by invitation and would provide a mechanism for the Council and member agencies to share information on programs and activities and to coordinate management efforts or resources to address fishing and non-fishing related issues which may ocean and coastal resources within and beyond the jurisdiction of the Council. Committee meetings would coincide with regularly scheduled Council meetings and recommendations made by the committee to the Council would be advisory, as would recommendations made by the

Council to member agencies. Under the MSA, the Council has the authority to create advisory panels and committees (16 U.S.C 1852).

2.4.1.3 Alternative 4C: Participate in and support Ocean Council type groups

Under this alternative, the Council would not establish any new committees or other groups but would instead participate in and support and the establishment of Ocean Council type groups established by the Governor of each inhabited island area served by the Council (i.e. American Samoa, Guam, Hawaii and the Commonwealth of the Northern Mariana Islands). Such a group has been established by the Governor of Hawaii (the Hawaii Ocean and Coastal Committee) and is comprised primarily of local and county agencies with oversight of development, ocean recreation, tourism, and natural resource management. This committee is tasked with the development of policies to improve the permitting and implementation of actions that affect ocean and coastal resources under their combined jurisdiction. Federal agencies, including the Council are members of this committee which was established in 2005.

2.4.1.4 Alternative 4D: Establish independent Regional Ecosystem Councils

Under this alternative the Council, NOAA, and NMFS would together establish and administer independent Regional Ecosystem Councils to supplement the existing decision making process. These Regional Ecosystem Councils would be comprised of executive level representatives from Federal, state and local government agencies, businesses and non-governmental organizations that have responsibility or interest in land-based and non-fishing activities that potentially affect the marine environment.

The Regional Ecosystem Councils would provide a mechanism for the Council and other member agencies to share information on programs and activities and to coordinate management efforts or resources to address non-fishing related issues beyond the jurisdiction of the Council which could affect ocean and coastal resources. Regional Ecosystem Council meetings would coincide with regularly scheduled Council meetings and recommendations to the Council would be advisory, as would recommendations made by the Council to other member agencies.

2.5 Issue 5: International Coordination (Non-regulatory)

The Council is an active participant in the development and implementation of international agreements regarding marine resources. These include agreements made by the Inter-American Tropical Tuna Commission (of which the U.S. is a member) and the Western and Central Pacific Fisheries Commission (of which the U.S. is a cooperating non-member). The U.S. delegation which attends meetings of these international commissions is headed by representatives from the U.S. Department of State. The Council also participates in and promotes the formation of regional and international arrangements for assessing and conserving all marine resources throughout their range, including the ecosystems and habitats they depend (i.e. the Forum Fisheries Agency and the Secretariat of the Pacific Community's Oceanic Fisheries Programme). The Council is also developing similar linkages with the Southeast Asian Fisheries Development Center and its turtle conservation program. The Council participates in various international

workshops and seminars such as ongoing the International Fishers' Forum (three forums since 2000), the 2005 South Pacific Commission/Western Pacific Regional Fishery Management Council/Food and Agriculture Organization (U.N.) Workshop on Legislation and Community-based Management, the International Marine Debris Conference series (four since 1986), and the 2004 Asia Pacific Economic Cooperation Seminar on Derelict Fishing Gear and Related Marine Debris.

The western and central Pacific Ocean is dotted with thousands of islands governed by several nations. American Samoa, for example, is surrounded by the EEZs of five independent nations, and the Pacific Remote Island Areas (Wake, Jarvis, Howland/Baker, Palmyra) are part of larger archipelagic island chains. As marine ecosystems are generally considered "open" systems and large scale impacts can be observed within smaller units, international coordination will be a necessary component of successful implementation of an ecosystem approach within the Western Pacific Region. The following alternatives represent a range of non-regulatory actions that the Council may consider in relation to its participation in discussions and meetings that are international in scope, but have implications for local management of marine resources.

2.5.1 Alternative 5A: No Action- continue to participate in international fisheries management fora and international workshops

Currently, the Council participates in two international pacific pelagic fisheries management bodies, the Western and Central Pacific Fisheries Commission, and the Inter-American Tropical Tuna Commission. The Council also participates in various international workshops and seminars as discussed above. Under this alternative, the Council would continue work with the U.S. Department of State and NMFS' Office of International Fisheries to maintain its current level of participation in international commissions, meetings, workshops, and seminars.

2.5.2 Alternative 5B: Increase participation in international fisheries management fora and establish meetings/workshops with neighboring nations of island areas of the Western Pacific Region (Preferred)

Under this alternative, the Council's level of participation in international commissions, meetings, workshops, and seminars would be increased to include the establishment of meetings and workshops with neighboring nations of Western Pacific Region island areas. For example, the EEZ of American Samoa is bounded by the EEZs of five neighboring countries, and Samoa (Upolu Island) is located only 70 km west of American Samoa (Tutuila Island). The Pacific Remote Island Areas of Palmyra and Jarvis lie within the Line Island Archipelago, of which, the Kiribati governs the remaining islands. Discussions and meetings between the Council and fishery managers of neighboring nations would facilitate information exchange and promote coordination of fishery ecosystem management issues. Under this alternative, the Council would work with the U.S. Department of State and NMFS' Office of International Fisheries on proper protocols to facilitate meetings and workshops with neighboring nations.

2.5.3 Alternative 5C: Stop participating in international management fora

Under this alternative, the Council would end its participation in international meetings, workshops, and seminars.